

Bachelor of Science in Medicine

Abstract for 1996

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A decade of dynamic cardiomyoplasty for the management of heart failure

Chris Andrew, J Odum, Department of Pediatrics

A swelling population of ageing baby boomers is entering the next millennium. This demographic shift in North America's population raises the spectre of a growing epidemic of end-stage heart failure. Over the past decade, a number of new surgical techniques have emerged on the clinical horizon to complement the existing surgical therapies of cardiac allograft replacement and mechanical device assistance. These novel surgical approaches share the use of stimulated autologous skeletal muscle as an internal biomotive source of circulatory support. The impetus to develop management strategies for heart failure stems from the limitations of current drug therapy, the dearth of cardiac allografts, the unfulfilled goal of permanent mechanical device implantation and xenotransplantation, and the tremendous financial costs. This review focuses on recent advances in our understanding of biomechanical cardiac assist. In particular, the ongoing clinical results of dynamic cardio□myoplasty for the management of heart failure, potential mechanisms of action and areas for future research with this evolving technique are reviewed.

Reassessment of the timing of growth plate fusion of the proximal tibia and distal femur, and the disappearance of the epiphyseal line: A two part study

Sandra Baydock, C Meiklejohn, M Reed, Departments of Anthropology and Radiology

The purpose of this study was to develop new standards for growth plate fusion of the proximal tibia and distal

evidence of a direct fetal influence on maternal PRL secretion in a current pregnancy and that the current fetal influence is expressed in subsequent pregnancies. Thus, maternal reactivity to the fetus appears to be of long duration and, at least in part, mediated through pituitary secretion of PRL.

A comparison of clonidine with conventional preanesthetic medication in patients undergoing coronary artery bypass grafting

Mark Peterson, I Thompson, Department of Anesthesia

Clonidine reduces sympathetic outflow and the minimum alveolar concentration of volatile anesthetics. Clonidine has been added to conventional preanesthetic medication to reduce anesthetic requirements and to improve intraoperative hemodynamic stability in patients undergoing coronary artery bypass grafting (CABG). However, the sedative, anxiolytic and anesthetic-sparing properties of clonidine have not been compared with those of standard preanesthetic medications in this population. Thirty-five patients undergoing CABG with ejection fraction 0.29 or greater were randomly assigned to one of three groups receiving clonidine 5 mg/kg orally (group C), lorazepam 60 mg/kg orally (group L), or morphine 0.1 mg/kg plus scopolamine 6 mg/kg intramuscularly (group M). Anesthesia was induced with sufentanil 2.0 mg/kg intravenously over 12.5 mins. After intubation, a pharmacokinetically driven, computer-assisted infusion system targeted a constant sufentanil effect site concentration of 0.75 ng/mL throughout the prebypass period. Hemodynamic and expired gas data were recorded every 15 to 30 s by computer and sampled for statistical analysis at control, intubation, skin incision, sternotomy, sternal lift, sternal spread and aortic stitch stages. The three premedication regimens did not differ with respect to the dose of sufentanil causing unconsciousness or electroencephalographic suppression. Average prebypass end-tidal isoflurane concentration (ET-ISO) and ET-ISO at predefined study intervals were significantly lower in group C than in group M. Peak isoflurane requirements following periods of intense surgical stimulation also were significantly lower in group C than in groups L and M. Mean arterial pressure was significantly lower in group C than in groups L and M. It was concluded that clonidine produces sedation and anxiolysis comparable with that of conventional premedication. Clonidine uniquely reduces isoflurane requirements while providing superior hemodynamic stability. This property might be exploited to reduce cost, avoid anesthetic toxicity and enhance recovery in patients undergoing CABG.

RHAMM expression in human renal allograft rejection

Michael Routledge, P Grimm, Department of Pediatrics

The receptor for hyaluronan-mediated motility (RHAMM) is involved in cell locomotion. RHAMM mediates motility and response to injury in a number of systems that are responsible for the invasion and destruction of organ transplants. RHAMM expression was examined in human renal allograft biopsies using immunohistological techniques. RHAMM staining was stronger in biopsies from renal allografts than in those from healthy kidneys. Among renal allografts, RHAMM expression was increased in biopsies with strong acute and/or chronic rejection episodes compared with biopsies from asymptomatic grafts. This indicates that RHAMM may be important in the inflammatory response that leads to transplant organ failure.

Expression of CD69 in HIV-infected individuals: A flow cytometric marker for dysregulation of T cell responses to activation

Michael Rudd, F Paraskevas, Department of Internal Medicine

Recent studies suggest that the persistent in vivo activation of CD4⁺ T lymphocytes in human immunodeficiency virus (HIV)-infected individuals primes the lymphocytes to enter the apoptosis pathway. The state of, and capacity for, activation of CD4⁺ T cells in HIV-negative controls and HIV-positive subjects